

REMARKS

Claims 2, 3, 5, 7, 13, 22, 24, 25 and 34 are pending in the application and have been allowed. Claims 1, 4, 6, 8-12, 14-21 and 26-33 were canceled in a previous amendment. Claim 7 was amended to more particularly point out and distinctly claim the invention of claim 7 and to correct an antecedent basis issue. Support for the amendment to claim 7 can be found in at least Figure 9 of the specification. Claim 13 was amended to address an obvious typographical error. Therefore, no new matter has been added.

For at least the reasons set forth below, a withdraw of all currently applied rejections and a Notice of Allowability for all pending claims is respectfully requested.

Request for Interview Prior to Formal Action on Amendment

Applicants request an interview prior to formal action on this response. An "Applicant Initiated Interview Request Form" accompanies this response. Please contact Applicants' undersigned representative to schedule the interview.

Prior Art Rejections

Claims 3, 7, 22, 25 and 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,710,608 (Yoshida *et al.*).

Claims 2, 5 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshida *et al.* in view of U.S. Patent No. 6,362,642 (Farworth).

Claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshida *et al.* in view of U.S. Patent No. 6,426,638 (Di Stefano).

Applicants note that in the outstanding Advisory Action, the Examiner maintained the previously applied rejections and further indicates that the Amendment After Final submitted on September 20, 2007 would be entered for purposes of appeal. Also, Applicants note that the Examiner provided comments regarding why the amendments and arguments submitted on September 20, 2007 would be rejected.

Applicants restate their traversal of the prior art rejections. In response to the outstanding Advisory Action, Applicants restate the arguments submitted in response to the previous Office Action and further address the comments made by the Examiner in outstanding Advisory Action.

A. Restatement of arguments presented in Amendment After Final filed on September 20, 2007:

1. Patentability of independent claim 7 over Yoshida

Claim 7 currently reads as follows (underlining for emphasis only):

A probe module comprising:

- a probe base having a plurality of conductive metal traces;
- a plurality of probe pins attached to the probe base, each of the probe pins comprising an elongated body wherein at least part of the elongated body is bonded to at least one of the plurality of conductive metal traces of the probe base;
- a circuit interconnect device for connecting the plurality of probe pins to an inspection apparatus;
- a compression arm attached to the probe base and configured to engage the plurality of probe pins; and
- at least one adjustment element provided on the probe base that adjusts the compression arm against the plurality of probe pins to adjust a contact angle of the probe pins.

Embodiments of the present application disclose structure that allows for adjustment of a contact angle of the probe pins by adjustment of an element that adjusts a compression arm against the probe pins. Specifically, an adjustment element, such as screw 83, facilitates fine adjustment of the contact angle of the probe pins 36 by altering the pressure on compression arm 82 which is engaged with the probe pins 36. Given that there is no structural part of the base 67 above or beneath the probe pins 36 or the probe pin bodies 38 that would prevent the angular movement of the probe pin bodies 38 or the probe pins 36, the contact angle of the probe pins can be adjusted. See Figures 8 and 9 and paragraphs [0034], [0035] and [0051] of the specification.

On page 2 of the outstanding Office Action, in the rejection of claim 7, the Examiner states that Yoshida does not disclose the adjusting of the contact angle of the probe pins. However, the Examiner further states that it would have been obvious to one skilled in the art to

adjust the contact angle of the probe pins in light of the adjustment element 130E that can be manipulated to adjust the compression arm 112E for pressing onto the plurality of contact pins 3aE as disclosed in Figures 16-20 of Yoshida. The Applicants respectfully disagree.

In most of the embodiments disclosed in Yoshida, including the embodiment cited by the Examiner, there is typically an upper clamp 111 and a bottom plate 116 that are combined to form the probe device. The compression arm (typically 112) of the upper clamp is adjusted via a bolt (typically 130) to apply compression force on the probe pins (typically 3aE) against the bottom plate 116. See, for example, Figs. 21-24, 27, 29, 31, 33, 38, 41-43, 46-48, and 50-52 of Yoshida. Yoshida's structural configuration does not allow for the adjustment of the contact angle of the probe pins 3aE via the compression arm 112 or bolt 130. To the contrary, increasing the compression of arm 112 via bolt 113 can only press the probe pins 3aE against the plate 116, but cannot adjust the probe pin contact angle. Therefore, in contradiction to the Examiner's statement, one skilled in the art would recognize that adjustment of the contact angle of the probe pins 3aE was not possible via a compression arm 112 and the adjustment element 130 from these embodiments of Yoshida.

In addition, none of the embodiments in Yoshida disclose or suggest the adjustment of a contact angle of the probe pins via a compression arm and adjustment element. To the contrary, Yoshida discloses that when the adjustment of the contact angle of the probe pins is desired, the probe pins (typically 36) should be bent to predetermined angles or positions (S, S1, S2) as required by the application. See at least Figures 38, 58, 59, 71, and 72 of Yoshida. Once bent into a predetermined angle or position, these angles or positions are not adjustable without reformation of the probe device. See at least column 28, lines 22-25 and column 36, lines 11-20 of Yoshida. Therefore, one skilled in the art would not recognize from these embodiments of Yoshida that the adjustment of the contact angle of the probe pins via a compression arm and adjustment element was either possible or obvious. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the §103(a) rejection of claim 7.

2. Patentability of dependent claims 2, 5 and 24 over Yoshida in view of Farworth

The dependent claims 2, 5 and 24 are believed patentable over the applied references for at least the reason they are dependent upon a patentable base claim and because they recite additional patentable elements. Further, Farworth does not compensate for the deficiencies of

Yoshida. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the §103(a) rejections of claims 2, 5 and 24.

3. Patentability of dependent claim 13 over Yoshida in view of DiStefano

The dependent claim 13 is believed to be patentable over the applied references for at least the reason it is dependent upon a patentable base claim and because it recites additional patentable elements. Further, DiStefano does not compensate for the deficiencies of Yoshida. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the §103(a) rejection of claim 13.

B. Applicants traverse the Examiner's rationale as stated in the outstanding Advisory Action:

In the outstanding Office Action, the Examiner states that the combination of the bolt 130E with the first projection 112E and the elastic film 400E would allow for the adjusting of the contact angle of the end portion of contact pins 3aE. Further, the Examiner states that one of ordinary skill in the art would have found it obvious from Yoshida that the bolt 130E in combination with the first projection 112E and the elastic film 400E press the front end portions of the contact pins 3aE that are bent in the S, S1 and S2 positions for good contact with the device under test (DUT or LCD) 90.

The bolt 130E in combination with the first projection 112E and the elastic film 400E do not combine to make obvious the claim limitation:

at least one adjustment element provided on the probe base
that adjusts the compression arm against the plurality of
probe pins to adjust a contact angle of the probe pins

The bolt 130E in combination with the first projection 112e and elastic film 400E cannot adjust the contact angle of the probe pins 3aE. As argued previously, adjusting the bolt 130E can only drive the first projection 112E into a tighter connection with the inclined plate 116E. The

addition of the optional elastic layer 400E does not change the dynamic relationship between the first projection 112E and the inclined plate 116E. To the contrary, if the optional elastic film 400E is present, then the elastic layer 400E would simply be more tightly compressed between the first projection 112E and the inclined plate 116E if the bolt 130E is adjusted to tighten against the first projection 112E. No angular movement of the elastic film 400E of any kind would result. Thus, the elastic film 400E cannot contribute to the adjustment of the contact angle of the pins 3aE.

The Examiner recites column 25, lines 29-36 of Yoshida which reads as follows (underlining added for emphasis):

The elastic film 400E is sandwiched between the first projection 112E of the top clamp 111E and the resin film 201E. The elastic film 400E overlaps the resin film 201E and projects over the front end portions of the contact pins 3aE, in order to press the front end portions of the contact pins 3aE against the terminals of the LCD 90 when the front end portions of the contact pins 3aE are bent in the S, S1 and S2 positions (FIG. 22).

As clearly stated in the language recited by the Examiner, contact occurs between the elastic film 400E and the contact pins 3aE when the front end portions of the contact pins 3aE are bent in the S, S1 and S2 positions as seen in Fig. 22 of Yoshida. Therefore, the section cited by the Examiner supports the interpretation of Yoshida that it is the bending of the contact pins to positions S, S1 and S2 wherein the contact angle of the pins 3aE is adjusted. The elastic film 400E serves only to provide a “backstop” against which the contact pins 3aE would be pressed after the contact pins 3aE are themselves pressed against the device under test 90. As stated in Yoshida, column 25, lines 40-47 (underlining added for emphasis):

Furthermore, when the contact pins 3aE are pressed against the terminals of the LCD 90, the highly elastic film 400E presses from above the contact pins 3aE and even with

respect to position S1 allows for a firm contact between the terminal of the LCD 90 and the contact pins 3aE. Thereby, a uniform contact pressure can be obtained at the front ends of the respective contact pins 3aE according to the fifth embodiment of the present invention.

Thus, the elastic film 400E serves only to maintain pressure on the contact pins 3aE when the contact pins 3aE are themselves forced against the elastic film 400E. The elastic film 400E cannot be manipulated in combination with the first projection 112E by the bolt 130E to adjust the contact angle of the contact pins 3aE. The only manipulation of the contact angle of the contact pins 3aE disclosed or suggested in Yoshida is the bending of the pins to positions S, S1 or S2, where such bending is not a function of any of the first projection 112E, the bolt 130E or the elastic film 400E, either individually or in combination.

Therefore, as disclosed in Yoshida, the bolt 130E in combination with the first projection 112E and elastic film 400E can only, at most, limit the deflection of the front ends of the pre-bent contact pins 3aE that is caused by the contact between the contact pins 3aE and the device under test 90 in order to maintain a uniform contact pressure. This deflection limitation/constant pressure structure and function on the part of the elastic film 400E does not make obvious at least one adjustment element provided on the probe base that adjusts the compression arm against the plurality of probe pins to adjust a contact angle of the probe pins.

Conclusion

Insofar as the Examiner's objections and rejections were fully addressed, the instant application is in condition for allowance. A Notice of Allowability of all pending claims is therefore earnestly solicited.

Respectfully submitted,

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(Date)

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